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Week 3 Exercises

10) Correct the following code so that it finds the sum of 20 numbers.

sum = 0;

while (count < 20)

cin >> num;

sum = sum + num;

count++;

Answer: The variable count needs to be initialized and brackets need to be after while (count < 20) and after count++. Also, to get 20 numbers the count < 20 needs to be changed to count <= 20

sum = 0;

count = 0;

{

while (count <= 20)

{

cin << num;

sum= sum + num;

count++;

}

}

12) What is the output of the following program with input:

58 23 46 75 98 150 12 176 145 -999

int main()

{

int num;

cin >> num;

while (num != -999)

{

cout << num % 25 << " ";

cin >> num;

}

cout << endl;

return 0;

}

Answer: Outputs are: 8 23 21 0 23 0 12 1 20, after that the program would simply terminate because the expression in the loop would evaluate to false as the last input (-999) was evaluated.

14) What is the output of the following program segment?

int count = 0;

while (count++ < 10)

cout << “This loop can repeat statements.” << endl;

Answer: The program will output the string “This loop can repeat statements.” 10 times and then will terminate.

18) What type of loop, such as counter-control and sentinel-control, will you use in each of the following situations?

a) Sum the following series: 1 + (2/1) + (3/2) + (4/3) + (5/4) + … + (10/9)

Since the number of times the statement needs to be executed is known a counter-control loop would be used.

b) Sum the following numbers, except the last number: 17, 32, 62, 48, 58, -1

Since the last number is wished to be excluded from the summation of the other numbers that makes it the sentinel number in a sentinel-controlled loop.

c) A file contains an employee’s salary. Update the employee’s salary.

An end-of-file (EOF) controlled while loop would be used in this case.

26) Suppose that the input is 5 3 8. What is the output of the following code?

cin >> a >> b >> c;

for (j = 1; j < a; j++)

{

d = b + c;

b = c;

c = d;

cout << c << “ ”;

}

cout << endl;

Answer: 11 19 30 49